THE INSTITUTE FOR CANCER RESEARCH
and
THE LANKENAU HOSPITAL RESEARCH INSTITUTE
7701 Burholme Avenue
Fox Chase
Philadelphia 11, Pa.
July 29,1955

Dr. Joshua Lederberg
Department of Genetics
University of Wisconsin
Madison 6, Wisconsin

Dear Joshua:

Sorry, but I cannot answer the question in your letter. We had indirect evidence (cell size) of aneuploidy in the abnormal embryos developing from eggs fertilized with partially inactivated sperm, but no chromosome studies. The reasons for this were 1) we got the nuclear transfers to work, and dropped the other project and 2) it was very hard to do good chromosome studies on early embryos anyhow. However, recently Marie DiBerardino, who works for Tom and me, has developed a method for making squashes of early embryos that gives good figures. So far we have been using this only in the transplantation experiments, but it would make a solution of the other problem feasible.

If it were done I'm not sure what we would expect. Actually in any given embryo there would probably be a variety of chromosomal complements, and it would be very difficult to assign developmental significance to particular chromosomal conditions. However, by combining the dye type of experiment with chromosomal studies and nuclear transplantations one might really learn something. Whether each chromosome would turn out to be a unit of response to the dye I have no idea.

Apparently there is very little of this sort of work in Drosophila. I asked Jack Schultz and all that he could think of that would possibly be interesting to you was the paper by Fahmy & Fahmy in J. Genetics 52, which you probably know anyway.

Incidentally, the methodological trick in getting good chromosome preparations with some kinds of refractory material is merely to soak the fresh material in Ca & Mg-free Nui-Twitty solution containing 0.02 M phosphate buffer (pH 7.6) for 15-30 min. prior to squashing in acetic orcein. The effect on the spindle is rapidly reversed if the cells are exposed again to Ca & Mg. The same result can be obtained with colchicine, as Hungerford here has found, but with more fuss. I mention this just in case it might sometime be useful to you.

Best regards to both of you

Robert Briggs

RB:eh